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HEWLETT-PACKARD COMPANY
Intellectual Property Administration
3404 E. Harmony Road
Mail Stop 35
FORT COLLINS, CO 80528

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

JERRY.SHORMA@HP.COM
ipa.mail@hp.com
laura.m.clark@hp.com

| *Office Action Summary* | **Application No.** 10/797,152 | **Applicant(s)** BANERJEE ET AL. |
|---|---|---|
| | **Examiner** RANDY SCOTT | **Art Unit** 2453 |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 June 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-7 and 9-37* is/are pending in the application.

4a) Of the above claim(s) *13-18 and 30-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7. 9-12, 19-29, and 35-37* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is responsive to the communication filed 6/23/2009

2. Claims 1, 9, 19, 24, 26, 28, and 35-36 are currently amended. Claim 8 has been cancelled, and claims 13-18 and 30-34 have been withdrawn from consideration.

**Claim Rejections – 35 USC 103**

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office Action:

> (a) A patent may not be obtained through the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 6, 12, 24, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293) in view of Busche (US 5,805,593).

Regarding claims 1, 24, and 35, Hahn et al disclose:

Receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which

teaches LDAP, which is a function that addresses the limitations claimed in this application), and storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al do not specifically teach searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service.

However, Busche provides language for searching the stored information to identify a plurality of service nodes (see col. 4, lines 22-25, which teaches locating a neighboring node that is capable to provide a service) operable to provide the requested service in response to a service path not existing that is operable to provide the requested service (col. 5, lines 43-54).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service, as illustrated by Busche, in order to efficiently provide requested data routed through optimal paths.

Regarding claim 6, Hahn et al disclose:

Wherein searching the stored information comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service or is operable to provide at least one of the requested services if a plurality of services are requested (see sec [0011], lines 3-6, which teaches performing a query to determine a route that has a

server instance capable of handling the request and sec [0017], lines 2-5, which teaches determining if a particular route has failed).

Regarding claim 12, Hahn et al disclose:

Wherein searching stored information comprises searching stored information for at least one of a service path and a service node operable to provide the requested service via a multicast in an application layer multicasting network (see sec [0018], lines 3-8, which teaches sing the multicast protocol to send messages throughout each DSD agent to verify that each agent may be able to receive data via each route in the network, the procedure also checks for route failure, also see sec [0067], lines 1-3, which discloses that each DSD agent table contains server routes for each requested service).

5. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 2, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 2, except for wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network.

The general concept of wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029],

lines 1-3, "global hash table") and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network) is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

6. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 3, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 3, except for wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree.

The general concept of wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, "global hash table") and information associated with services provided for nodes in a

distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 5-8) is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network, and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

7. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 4, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 4, except for wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes physically close in the physical network.

The general concept of wherein the stored information comprises a global information table, the global information table including at the least location information (see sec [0029], lines 1-3, "global hash table") and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 5-8), and wherein the global information table includes information for nodes physically close in the physical network (see sec [0013], lines 18-23, "physical network") is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the stored information comprises a global information table, the global information table including at the least location information and information associated with services provided for nodes in a distributed hash table overlay network, and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 5, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 5, except for wherein searching stored information comprises: searching the stored information to determine whether a service path or a service node exists that is operable to provide the requested service and satisfy a QoS characteristic identified in the request, the QoS characteristic being associated with delivering the requested service.

The general concept of wherein searching stored information comprises: searching the stored information to determine whether a service path or a service node exists that is operable to provide the requested service and satisfy a QoS characteristic identified in the request, the QoS characteristic being associated with delivering the requested service (see sec [0038], lines 2-6, "Qos") is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein searching stored information comprises: searching the stored information to determine whether a service path or a service node exists that is operable to provide the requested service and satisfy a QoS characteristic identified in the request, the QoS characteristic being associated with delivering the requested service, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

9. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Busche (US 5,805,593).

With respect to claim 7, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 7, except for wherein searching the stored information to determine whether a service path exists comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service and is within a predetermined distance to a node requesting the service.

The general concept of wherein searching the stored information to determine whether a service path exists comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service and is within a predetermined distance to a node requesting the service (see col. 6, lines 1-5, which teaches predetermined shortest path determination for routers connected services to destination nodes) is well known in the art as illustrated by Busche.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein searching the stored information to determine whether a service path exists comprises: searching the stored information to determine whether a service path exists that is operable to provide the requested service and is within a predetermined distance to a node requesting the service, as illustrated by Busche, in order to effectively route services to nodes in a network.

10. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Busche (US 5,805,593).

With respect to claim 8, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 8, except for wherein searching the stored information comprises: searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service.

The general concept of wherein searching the stored information comprises: searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service (see col. 2, lines 40-50, which teaches that a destination node is chosen from a group of local nodes when no shortest path is found at the origination node) is well known in the art as illustrated by Busche.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein searching the stored information comprises: searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to a service path not existing that is operable to provide the requested service, as illustrated by Busche, in order to effectively route services to nodes in a network.

11. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Busche (US 5,805,593).

With respect to claim 9, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 9, except for wherein for applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service.

The general concept of applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service (see col. 4, lines 10-15, "shortest path algorithm) is well known in the art as illustrated by Busche.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service, as illustrated by Busche, in order to effectively route services to nodes in a network.

12. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Kumar (US 2005/0122904).

With respect to claim 10, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 10, except for wherein the request comprises information identifying a plurality of requested services and an order for delivering the requested services.

The general concept of wherein the request comprises information identifying a plurality of requested services and an order for delivering the requested services (see sec [0027], lines 2-6,

which teaches specifying one or more services being requested) is well known in the art as illustrated by Kumar.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the request comprises information identifying a plurality of requested services and an order for delivering the requested services, as illustrated by Kumar, in order to efficiently regulate directory control of nodes containing services.

13. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Kumar (US 2005/0122904).

With respect to claim 11, Hahn et al teaches storing the location information associated with services (see sec [0048], as discussed above).

Hahn et al teaches all the limitations of claim 11, except for wherein the request comprises information identifying at least one requested service and at least one QoS characteristic associated with delivering the requested service.

The general concept of wherein the request comprises information identifying at least one requested service and at least one QOS characteristic associated with delivering the requested service (see sec [0022], lines 2-8, which teaches QOS based on service characteristics) is well known in the art as illustrated by Kumar.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the request comprises information identifying at least one requested service and at least one QOS characteristic associated with delivering the requested

service, as illustrated by Kumar, in order to efficiently regulate directory control of nodes containing services.

14. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Oom Temudo de Castro et al (US 2005/0030904), further in view of Cloonan et al (US 5,345,444).

With respect to claim 19, Hahn et al teaches the limitations discussed previously.

Hahn et al teaches all the limitations of claim 19, except for wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node.

The general concept of wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) is well known in the art as illustrated by Oom Temudo de Castro et al.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node, as illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource.

Hahn et al and Oom Temudo de Castro et al do not specifically teach wherein the at least one local landmark node is on a routing path to one of the global landmark nodes.

However Cloonan et al provide language for wherein the at least one local landmark node is on a routing path to one of the global landmark nodes (see col. 12, lines 44-48).

It would have been obvious to one of ordinary skill in the art to combine Hahn et al and Oom Temudo de Castro et al with the general concept of wherein the at least one local landmark node is on a routing path to one of the global landmark nodes, as illustrated by Cloonan et al, in order to successfully implement path routing between network nodes.

15. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Oom Temudo de Castro et al (US 2005/0030904).

With respect to claim 20, Hahn et al teaches the limitations discussed previously.

Hahn et al teaches all the limitations of claim 20, except for wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

The general concept of wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of

the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, "predefined landmark nodes") is well known in the art as illustrated by Oom Temudo de Castro et al.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes, as illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource.

16. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Oom Temudo de Castro et al (US 2005/0030904), further in view of Matsubara (US 2004/0008687).

With respect to claim 21, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations

claimed in this application), and storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al teaches all the limitations of claim 21, except for wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

The general concept of wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, “predefined landmark nodes”) is well known in the art as illustrated by Oom Temudo de Castro et al.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes, as illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource.

Hahn et al, in combination with Oom Temudo de Castro et al, teach all the limitations of claim 21, except for storing a QoS characteristic associated with at least one of the plurality of nodes in the table.

The general concept of storing a QoS characteristic associated with at least one of the plurality of nodes in the table (see sec [0017] and [0018], lines 1-3, which discloses qos implementation of path data in a path table) is well known in the art as illustrated by Matsubara.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of storing a QoS characteristic associated with at least one of the plurality of nodes in the table, as illustrated by Matsubara, in order to effectively access resources by managing path data.

17. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Oom Temudo de Castro et al (US 2005/0030904), further in view of Matsubara (US 2004/0008687).

With respect to claim 22, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations

claimed in this application), and storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location).

Hahn et al teaches all the limitations of claim 22, except for wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

The general concept of wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, "predefined landmark nodes") is well known in the art as illustrated by Oom Temudo de Castro et al.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes, as illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource.

Hahn et al, in combination with Oom Temudo de Castro et al, teach all the limitations of claim 22, except for storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table.

The general concept of storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table (see sec [0036], lines 5-8 and sec [0040], lines 6-9, which teach destination IDs and identifying interfaces of the node that connect with network links) is well known in the art as illustrated by Matsubara.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of storing at least one of a node identifier and a service path identifier for each of the plurality of nodes in the table, as illustrated by Matsubara, in order to effectively access resources by managing path data.

18. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Oom Temudo de Castro et al (US 2005/0030904).

With respect to claim 23, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations

claimed in this application), storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location), and wherein receiving location information for a plurality of nodes comprises receiving location information for a plurality of nodes, the nodes being located physically close in the network (see sec [0013], "host machine location").

Hahn et al teaches all the limitations of claim 23, except for wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes.

The general concept of wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node (see sec [0010], which teaches measuring the distance between the subject node and reference nodes to provide the information) and wherein the at least one local landmark node is proximally located to a respective node of the plurality of nodes (see sec [0035], lines 1-3, which discloses measuring the distance between the subject node and many reference nodes and sec [0033], lines 7-10, “predefined landmark nodes”) is well known in the art as illustrated by Oom Temudo de Castro et al.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept wherein the location information for the plurality of nodes comprises distances measured from each of the plurality of nodes to a plurality of global landmark nodes and to at least one local landmark node and wherein the at least one local landmark node is

proximally located to a respective node of the plurality of nodes, as illustrated by Oom Temudo de Castro et al, in order to efficiently implement and infrastructure to capture the coordinates of a node that contains a requested resource.

19. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 25, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location), and wherein receiving location information for a plurality of nodes comprises receiving location information for a plurality of nodes, the nodes being located physically close in the network (see sec [0013], "host machine location").

Hahn et al teaches all the limitations of claim 25, except for wherein the stored information comprises a global information table, the global information table including at least

location information and information associated with services provided for nodes in a distributed hash table overlay network.

The general concept of wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network) is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

20. Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 26, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access

to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location), and wherein receiving location information for a plurality of nodes comprises receiving location information for a plurality of nodes, the nodes being located physically close in the network (see sec [0013], "host machine location").

Hahn et al teaches all the limitations of claim 26, except for wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree.

The general concept of wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, “global hash table” and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network) and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 6-9, which teaches the multicast tree’s role in the overlay network) is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the stored information comprises a global information table, the

global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network and wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

21. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Aggarwal (US 2004/0221154).

With respect to claim 27, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request); searching stored information at a node receiving the request for at least one of a service path and a service node operable to provide the requested service (see sec [0067], lines 1-4, which teaches searching for a desired service route for the service), wherein the information is stored in the node by receiving location information for the plurality of nodes (see sec [0048], lines 2-10, which teaches providing access to storage locations upon storing information at a particular address in the storage table, also see sec [0007], lines 8-11, which teaches LDAP, which is a function that addresses the limitations claimed in this application), storing the location information associated with services (see sec [0048], lines 10-16, which teaches storing information at a particular storage location), and wherein receiving location information for a plurality of nodes comprises receiving location information for a plurality of nodes, the nodes being located physically close in the network (see sec [0013], "host machine location").

Hahn et al teaches all the limitations of claim 27, except for wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes physically close in the physical network.

The general concept of wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network (see sec [0029], lines 1-3, "global hash table" and sec [0034], lines 2-6, which discloses that the table will determine appropriate paths for transferring through the overlay network), wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree (see sec [0036], lines 6-9, which teaches the multicast tree's role in the overlay network), and wherein the global information table includes information for nodes physically close in the physical network (see sec [0029], lines 1-6) is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of wherein the stored information comprises a global information table, the global information table including at least location information and information associated with services provided for nodes in a distributed hash table overlay network, wherein the distributed hash table overlay network is a logical representation of a physical network including the multicast tree, and wherein the global information table includes information for nodes

physically close in the physical network, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

22. Claims 28 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Busche (US 5,805,593), further in view of Aggarwal (US 2004/0221154).

With respect to claims 28 and 35, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request).

Hahn et al teaches all the limitations of claims 28 and 35, except for means for searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to one of a service path not existing that is operable to provide the requested service and a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

The general concept of means for searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to one of a service path not existing that is operable to provide the requested service (see col. 2, lines 40-50, which teaches that a destination node is chosen from a group of local nodes when no shortest path is found at the origination node) is well known in the art as illustrated by Busche.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of means for searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to one of a service path not

existing that is operable to provide the requested service, as illustrated by Busche, in order to effectively route services to nodes in a network.

Hahn et al, in combination with Busche, teach all the limitations of claims 28 and 35, except for a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

The general concept of a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic (see sec [0038], lines 2-6, "QOS based on predefined routes") is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

23. Claims 29 and 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hahn et al (US 2002/0152293), in view of Busche (US 5,805,593), further in view of Aggarwal (US 2004/0221154).

With respect to claims 29 and 36, Hahn et al teaches receiving a request for at least one service (see sec [0010], lines 1-3, which teaches receiving a client request).

Hahn et al teaches all the limitations of claims 29 and 36, except for means for searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to one of a service path not existing that is operable to provide the requested service, a service path not existing that is operable to provide the requested service and provide

at least one predetermined QoS characteristic, and means for applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service.

The general concept of means for searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to one of a service path not existing that is operable to provide the requested service (see col. 2, lines 40-50, which teaches that a destination node is chosen from a group of local nodes when no shortest path is found at the origination node) and applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service (see col. 4, lines 10-15, "shortest path algorithm) are well known in the art as illustrated by Busche.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of means for searching the stored information to identify a plurality of service nodes operable to provide the requested service in response to one of a service path not existing that is operable to provide the requested service and means for applying a clustering algorithm to the plurality of service nodes to identify a set of candidate service nodes from the plurality of service nodes closest to a node requesting the service, as illustrated by Busche, in order to effectively route services to nodes in a network.

Hahn et al, in combination with Busche, teach all the limitations of claims 29 and 36, except for a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic.

The general concept of a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic (see sec [0038], lines 2-6, "QOS based on predefined routes") is well known in the art as illustrated by Aggarwal.

It would have been obvious to one of ordinary skill in the art to combine Hahn et al with the general concept of a service path not existing that is operable to provide the requested service and provide at least one predetermined QoS characteristic, as illustrated by Aggarwal, in order to successfully transmit requested data along convenient paths in a network.

## *23. Arguments*

A. Applicant states that Busche (US 5,805,593) fails to teach or suggest determining if a path does not exist, and in response to the path not existing, searching the stored information to identify a plurality of service nodes operable to provide the requested service.

B. Applicant also alleges that Oom Temudo de Castro et al (US 2005/0030904) fails to teach or suggest wherein the at least one local landmark node is on a routing path to one of the global landmark nodes.

## *24. Response to Arguments*

**14.** Applicant's arguments filed on 6/23/09 have been fully considered but are not persuasive.

A. In response to the applicant's argument that Busche (US 5,805,593) fails to teach or suggest determining if a path does not exist, and in response to the path not existing, searching the stored information to identify a plurality of service nodes operable to provide the requested service:

Col. 4, lines 18-25 of Busche discloses that each node and following entry within a service path is considered until an entry is found that can satisfy the selected criteria. One area of criteria that is checked is if the node has the capacity to support the requested service. Regarding the limitation of determining if a path does not exist; col. 5, lines 43-51 of Busche, teaches that routing decisions are based on service paths that will eventually fail. Busche teaches alternate routing paths in the event that one node would happen to fail in col. 5, lines 49-53.

B. In response to the applicant's argument that that Oom Temudo de Castro et al (US 2005/0030904) fails to teach or suggest wherein the at least one local landmark node is on a routing path to one of the global landmark nodes:

Due to the newly amended language added in claim 19, the examiner has provided a reference from Cloonan et al (US 5,345,444), which teaches that a local node utilizes the path routing implementation of a global node (see col. 12, lines 44-48).

## Conclusion

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicant. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randy A. Scott whose telephone number is (571) 272-3797. The

examiner can normally be reached on Monday-Thursday 7:30 am-5:00 pm, second Fridays 7:30 am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Thomas can be reached on (571) 272-6996. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/RANDY SCOTT/

Examiner, Art Unit 2453

20091012

/Liangche A. Wang/

Primary Examiner, Art Unit 2453